UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H'A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,855	07/26/2005	Peter Williams Egolf	NITROS P168US	4655

20210 7590 11/20/2006

DAVIS & BUJOLD, P.L.L.C.
112 PLEASANT STREET
CONCORD, NH 03301

EXAMINER	
JAGAN, MIRELLYS	

ART UNIT	PAPER NUMBER
2859	

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/536,855	EGOLF ET AL.	
	Examiner	Art Unit	
	Mirellys Jagan	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11,12,14 and 20* is/are rejected.

7)☒ Claim(s) *13 and 15-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 5/27/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 14-20 are objected to because of the following informalities:

Claim 14, lines 14-18 claim that the device comprises method steps. It appears that the claim intends to state that the device is used to perform the claimed steps. Claims 15-20 are objected to for being dependent on objected base claim 141 Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 11, 12, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,311,447 to Bonne.

Referring to claim 11, Bonne discloses a method for continuous measurement of thermal conductivity of a fluid, the method comprising the steps of:

passing a sample of the multi-functional fluid through a space delimited by a first input face and a second exit face;

generating an increase in temperature of the sample of multi-functional fluid, at least by a very brief impulse of heat flux transmitted to the sample, through the first input face;

measuring the temperature increase in two separated points within the sample;

determining with the temperature increase measurement, an evolution of the multi-functional fluid temperature at the two points as a function of time;

determining thermodynamic characteristics of the sample of the multi-functional fluid as a function of the evolution;

calculating a thermal conductivity of the sample; and

establishing a thermogram consisting of temperature evolution curves as a function of an amount of time between the transmitting the impulses of heat flux through the first input face and the evolution of temperature as determined at the three separated points within the sample (see figures 2, 4a-4c, and 5; column 9, lines 58-61; and column 12, lines 7-33).

Referring to claims 14 and 20, Bonne discloses device for continuous measurement of thermal conductivity of a fluid, the device comprising:

a means designed to pass a sample of the multi-functional fluid through a space delimited by a first input face and a second exit face of the sample;

a means for heating the sample to vary a temperature of the sample;

a means to measure variation of the temperature of the sample

a means to transmit to the sample, at least a very brief impulse of heat flux, through the first input face, a means to measure a heat wave at three or more separate points within the sample;

a means to determine, on a basis of values measured, a temperature evolution of the multi-functional fluid as a function of time at the separate points within the sample using an arithmetic unit;

a means to deduce, from the temperature evolution, thermodynamic characteristics of the sample of the multi-functional fluid using an arithmetic unit; and

a means to calculate thermal conductivity of this sample;

wherein the device is used following the following steps of:

passing the sample of the multi-functional fluid through the space delimited by the first input face and the second exit face;

generating the increase in temperature of the sample of the multi-functional fluid, at least by the very brief impulse of heat flux transmitted to the sample, through the first input face;

measuring the temperature increase in the separated points within the sample;

determining with the temperature increase measurement, the evolution of the multi-functional fluid temperature at the points as a function of time;

determining the thermodynamic characteristics of the sample of the said multi-functional fluid as a function of the evolution; and

calculating the thermal conductivity of the sample.

Bonne does not disclose measuring the temperature increase in at least three separated points within the sample and establishing the thermogram based on the three temperatures.

Referring to claims 11 and 14, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Bonne by providing additional temperature sensors and measure the temperature increase in at least three separated points within the sample in order to obtain a more precise temperature measurement of the sample temperature, and since it has been held that the mere duplication of the essential working parts of a device involves only routine skill in the art. See *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Referring to claim 12, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Bonne by creating the thermogram using the three temperatures since Bonne teaches using all of the measured temperatures to create the thermogram.

Allowable Subject Matter

5. Claims 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

A method for continuous measurement of thermal conductivity of a fluid comprising using the equation of claim 13.

A device for continuous measurement of thermal conductivity of a fluid wherein the means to pass the sample of the multi-functional fluid through the space delimited by the first and second faces includes an enclosure with an insulating lining and an interior coating of polished metal, which is continuously traversed by the multi-functional fluid (see claim 15); wherein the means to transmit the at least one very brief impulse of the heat flux comprises at least one laser (see claim 16); wherein the means to transmit the at least one very brief impulse of the heat flux comprises an emitter tube (see claim 17); wherein the means to measure the heat wave which has traversed the sample comprises a receiver tube (see claim 18); or wherein the means to determine the temperature evolution of the multi-functional fluid as a function of time comprises at least three temperature probes (see claim 19).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references disclose determining the thermal conductivity of a fluid:

U.S. Patent 4,232,543 to Eguchi et al
U.S. Patent 5,258,929 to Tsuchida

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJ
November 10, 2006

Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800